THE INVENTION CLAIMED IS:

1. A semiconductor device, comprising:

a semiconductor with a dielectric layer formed thereon, wherein said dielectric layer overlays a region on said semiconductor and has a channel provided therein;

a first barrier layer disposed in said dielectric layer lining said channel, said first barrier layer of a metallic barrier material;

a conductive material disposed in said first barrier layer in said channel; and

a second barrier layer disposed over said conductive layer in said channel, said second barrier layer of a metallic barrier material, whereby said conductive material is totally enclosed in metallic barrier material.

2. The semiconductor device as claimed in claim 1 wherein said first barrier layer is a metallic barrier material selected from a group comprising tantalum, titanium, tungsten, a compound thereof, and a combination thereof.

3. The semiconductor device as claimed in claim 1 wherein said second barrier layer is a metallic barrier material selected from a group comprising tantalum, titanium, tungsten, a compound thereof, and a combination thereof.

4. The semiconductor device as claimed in claim 1 wherein said conductive material is selected from a group comprising copper, aluminum, doped polysilicon gold, silver, a compound thereof, and a combination thereof.

5. The semiconductor device as claimed in claim 1 wherein said first and second barrier layers are of the same metallic barrier material.

6. The semiconductor device as claimed in claim 1 wherein said first and second barrier layers have substantially the same thickness.

7. A method of manufacturing a semiconductor device, comprising said steps of:

providing a semiconductor with a dielectric layer formed thereon;

forming an opening in said dielectric layer, said opening defined by walls of said dielectric layer;

forming a first barrier layer in said opening and lining said dielectric layer, said first barrier layer is a metallic barrier material;

forming a conductive layer on said first barrier layer in said opening;

removing said conductive layer and said barrier layer outside said opening down to said dielectric layer;

removing a portion of said conductive layer inside said opening; and

forming a second barrier layer over said conductive layer in said opening, said second barrier layer is a metallic barrier material whereby said conductive layer is totally enclosed in metallic barrier material.

8. The method for manufacturing a semiconductor device as claimed in claim 7 wherein said step of forming said first barrier layer uses a metallic barrier material selected from a group comprising tantalum, titanium, tungsten, a compound thereof, and a combination thereof.

9. The method for manufacturing a semiconductor device as claimed in claim 7 wherein said step of forming said second barrier layer uses a metallic barrier material selected from a group comprising tantalum, titanium, tungsten, a compound thereof, and a combination thereof.

10. The method for manufacturing a semiconductor device as claimed in claim 7 wherein said step of forming said conductive material uses a material selected from a group comprising copper, aluminum, doped polysilicon, gold, silver, a compound thereof, and a combination thereof.

11. The method for manufacturing a semiconductor device as claimed in claim 7 wherein said step of forming said first and second barrier layers use the same metallic barrier material.

12. The method for manufacturing a semiconductor device as claimed in claim 7 wherein said step of forming said first and second barrier layers for said first and second barrier layers to substantially the same thickness.

13. A method of manufacturing a semiconductor device, comprising said steps of:

providing a semiconductor wafer with a dielectric layer formed thereon;

forming an opening in said dielectric layer, said opening defined by walls of said dielectric layer;

depositing a first barrier layer on said semiconductor wafer and in said opening to line said dielectric layer, said first barrier layer is a metallic barrier material;

depositing a conductive layer on said first barrier layer on said semiconductor wafer and in said opening, said conductive layer filling said opening;

removing said conductive layer and said barrier layer on said semiconductor wafer outside said opening down to said dielectric layer;

removing a portion of said conductive layer inside said opening to a predetermined depth;

depositing a second barrier layer over said semiconductor wafer and said conductive layer in said opening to fill said opening to about said predetermined depth, said second barrier layer is a metallic barrier material; and

removing said second barrier layer on said semiconductor wafer outside said opening down to said dielectric layer whereby said conductive layer is totally enclosed in metallic barrier material.

14. The method for manufacturing a semiconductor device as claimed in claim 13 wherein said step of depositing said first barrier layer uses a metallic barrier material selected from a group comprising tantalum, titanium, tungsten, a compound thereof, and a combination thereof.

15. The method for manufacturing a semiconductor device as claimed in claim 13 wherein said step of depositing said second barrier layer uses a metallic barrier material selected from a group comprising tantalum, titanium, tungsten, a compound thereof, and a combination thereof.

16. The method for manufacturing a semiconductor device as claimed in claim 13 wherein said step of depositing said conductive material uses a material selected from a group comprising copper, aluminum, doped polysilicon, gold, silver, a compound thereof, and a combination thereof.

17. The method for manufacturing a semiconductor device as claimed in claim 13 wherein said step of depositing said first and second barrier layers use the same metallic barrier material.

18. The method for manufacturing a semiconductor device as claimed in claim 13 wherein said step of removing said conductive layer to a predetermined depth removes said first barrier to the same depth as the thickness that said first barrier layer is deposited.